

is a spring can 36 in which is housed a conventional multiple turn torsional spring 38. Spring 38 may be a spiral wound spring similar to a watch spring, or may be a conventional negator spring. The outer end of torsional spring 38 is secured to spring can 36. The inner end of torsional spring 38 is secured to stationary shaft 32 by means of a slot and setscrew, keyed hub, or other conventional means. Spring can 36 is secured within body portion 26 by a plurality of studs 40 passing through corresponding apertures 42 in inner and outer reel halves 24A and 24B. Inner-end 42 of air hose 12 is coupled to inlet line 18 by means of a conventional swivel joint 44 via elbow fitting 46. (In an alternative embodiment of reel assembly 10 in which an electrical cord is wound about reel 24, a conventional slip-ring connector 47 is substituted for swivel joint 44. In another alternative embodiment of reel assembly 10 in which rope or cable is wound about reel 24, no rotating connection is required). Terminal end 20 of air hose 12 may be equipped with a conventional hose stop 48 to prevent air hose 12 from being withdrawn completely into cabinet 14. A snubbing roller 52 is attached to subframe 34 to act as a guide to constrain air hose 12 to wind onto reel 24. A uni-directional viscous clutch assembly 50 discussed more fully hereinafter, is disposed between reel 24 and support shaft 32 to provide a viscous retarding force that governs the retraction speed of reel 24 but does not inhibit the free paying-out of hose 12 from reel 24. --

Please amend the paragraph beginning on page 5, line 27 to read as follows:

-- FIG. 3 is an exploded perspective view of a viscous clutch assembly 50 incorporating principles of the present invention. Viscous clutch assembly 50 comprises a housing 54 having apertures 56 adapted to be bolted to corresponding apertures 58 passing through outer and inner reel halves 24A and 24B (FIG. 2). Housing 54 includes an annular chamber 60 having a radially inward wall 62 and a radially outward wall 64. A unidirectional clutch assembly 66 includes a collar member 68 and a unidirectional clutch 70. Unidirectional clutch 70 is press-fit into bore 72 of collar member 68 and/or may be retained by conventional anaerobic adhesives such as LOCTITE, such that unidirectional clutch 70 is rigidly attached to collar member 68 without the possibility of rotation therebetween. Unidirectional clutch assembly is disposed in chamber 60 such that keyed surface 74 is completely within chamber 60 while sealing surface 76 protrudes beyond flush with surface 78 of housing 54. A radial seal such as a conventional O-ring 80 seals

P3
inner-bore 72 of collar member 68 to radially inward wall 62 of chamber 60 thereby providing a fluid tight seal therebetween. --

P4
Please amend the paragraph beginning on page 6, line 10 to read as follows:

-- A plurality of vanes are disposed in chamber 60 to provide the viscous damping action, for example, in the illustrative embodiment, the vanes constitute stator disks 82 and rotor disks 84 each comprising disks of a hollow substantially circular cross-section that are disposed in chamber 60 in an alternating fashion with the rotor disks attached to the housing 54 and the stator disks 82 interleaved therebetween and attached to the collar member 68 to form a plurality of annular gaps between stator disks 82 and rotor disks 84. In the embodiment of FIG. 3, the rotor disks are attached to housing 54 by means of a plurality of tabs 86 extending radially outward from rotor disks 84 engaging a plurality of corresponding slots 88 formed in radially outward wall 64 of chamber 60, however, other means of attaching the rotor disks 84 to housing 54 such as splines, clips, adhesives, or other conventional methods are within the scope of the invention. Accordingly, as used herein, the term "attached" when used with reference to the interaction between the housing 54 and the rotor disks 84 means rigidly attached or attached in such a way so as to preclude substantial rotation therebetween. As used herein with reference to stator disks 82 and rotor disks 84, a hollow "substantially circular" cross-section means that the majority of the surface area of the disks lie within a hollow circular region defined by an inner radius and an outer radius, but does not preclude the presence of splines, tabs or other irregularities along the inner and outer radii.--

P5
Please amend the paragraph beginning on page 7, line 20 to read as follows:

-- FIG. 4 is an end view of one unidirectional clutch assembly 66 comprising a ramp-and-ball or ramp-and-roller overrunning clutch assembly. In the embodiment of FIG. 4, collar member 68 and unidirectional clutch 70 are disposed about support shaft 32. Unidirectional clutch 70 comprises a plurality of balls or rollers 104 disposed within a cavity 106 defined by outer surface 108 of support shaft 32 and inner cylindrical surface 110 of unidirectional clutch 70. Outer surface 108 comprises a series of ramps 112 arranged in a saw tooth pattern around the perimeter of surface 110. The ramps are arranged such that the radial clearance between outer

surface 108 of support shaft 32 at each of the tips 114 of ramps 112 is less than the diameter of rollers 104 and the radial clearance between surface 108 of shaft 32 and the root 116 of ramps 112 are greater than the diameter of rollers 104. Accordingly, as collar member 68 is rotated in the direction indicated by arrow A in FIG. 4, rollers 104 are jammed between outer-surface 108 of shaft 32 and inner-surface 110 of collar member 68 thus preventing substantial rotational motion between collar member 68 and shaft 32 (i.e. no more rotation than is necessary to effect the initial lock-up). Conversely as collar member 68 is rotated opposite the direction indicated by arrow A, roller members are freed to assume the orientation shown in FIG. 4 which permits them to slide easily over shaft 32 thereby providing substantially no resistance (i.e. other than ordinary friction) between collar member 68 and shaft 32 thereby permitting collar member 68 to freewheel about shaft 32. --

Please amend the paragraph beginning on page 8, line 8 to read as follows:

-- Although the embodiment of FIG. 4 comprises a ramp-and-ball or ramp-and-roller type of unidirectional clutch, other unidirectional clutch assemblies may be advantageously used in accordance with the principles of the present invention. As shown in FIG. 5, a ratchet and pawl clutch comprising ratchet gear 140 and ratchet pawl 142 may advantageously be used to provide the desired unidirectional clutching action. In the embodiment of FIG. 5, ratchet pawl 142 is attached to outer reel 24A and engages ratchet gear 140, which is keyed to shaft 144. Shaft 144 is in turn keyed to stator disks 82 (FIG. 3) of viscous clutch assembly 50 which, in turn, is supported by subframe 34. Although both the embodiment of FIG. 3 and the embodiment of FIG. 4 effect an operative unidirectional viscous damping between the reel and the support, in the embodiment of FIG. 3 the unidirectional viscous damping is effected by the unidirectional clutch disengaging the viscous damper from the support. In contradistinction, in the embodiment of FIG. 4, the unidirectional viscous damping is effected by the unidirectional clutch disengaging the reel from the viscous clutch.--

Please amend the paragraph beginning on page 9, line 1 to read as follows:

-- FIG. 7 depicts an alternative embodiment in which the unidirectional clutch comprises a helical spring clutch 170. Helical spring clutch 170 comprises a helical spring 172

A1
that has a slight interference fit over hub 174 and hub 176. As can be determined with reference to FIG. 7 if the relative rotation of hub 174 relative to hub 176 is opposite the direction of wind of helical spring 172, spring 172 will tend to expand and transmit very little torque, whereas if the rotation reverses, spring 172 will tend to contract and will transmit substantial torque between hub 174 and 176. Where, as in the present invention, the disengaged rotational speeds are relatively low, frictional heating is not of concern and, therefore a simple inexpensive clutch such as the embodiment of FIG. 7 may be preferred.--

A8
Please amend the paragraph beginning on page 10, line 7 to read as follows:

-- Although certain preferred embodiments and methods have been disclosed herein, it will be apparent from the foregoing disclosure to those skilled in the art that variations and modifications of such embodiments and methods may be made without departing from the spirit and scope of the invention. For example, although in the illustrative embodiment of FIGs. 1-4 the vanes that provide the viscous dampening comprise rotors and stators that shear a viscous fluid, other velocity-proportional viscous dampening assemblies may be advantageously used in accordance with the present invention, such as a plurality of fixed turbine vanes 200 attached to housing 202 interspersed with a plurality of rotating turbine vanes 204 attached to shaft 206 of reel 24 as shown in FIG. 9 or, as shown in FIG. 8, a plurality of paddles 190 attached to a hub 192 disposed within chamber 60 containing the viscous fluid. Accordingly, it is intended that the invention shall be limited only to the extent required by the appended claims and the rules and principles of applicable law. --

In The Claims

Please add new claims 17-20 and amend the remaining claims as follows:

1. An apparatus for storing an elongate member comprising:
a support frame;
a spool rotatably supported by said support frame, said spool having a cylindrical body and a pair of flanges extending radially outward from opposite ends of said cylindrical body;